TERMITES FROM BRITISH INDIA (BOMBAY) COLLECTED BY DR. J. ASSMUTH, S.J.

BY

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(*With Plates A, B, C and D.*)

After Wasmann in 1903 published his paper on "Termiten, Termitophilen and Myrmecophilen gesammelt auf Ceylon von Dr. W. Horn, 1899, etc.," the termite fauna of India seems to have been lost sight of by termitologists. Wasmann's Treatise on the Termites of the Continent of India (contained in the above named paper) is based on extensive material collected by his correspondents in India, Heim, Assmuth, Redemann, Martin, Hoogwerf, and others. As will always happen in such cases, our knowledge of the different species of termites remained incomplete, and it has not yet been possible to fill up the gaps.

As regards the termite fauna of Ceylon, which was dealt with by Wasmann in the paper just mentioned, the collections of Escherich and Green, which I have worked up, have completed our knowledge of it in several points, and the number of species has thereby been increased considerably; however here, too, several gaps remain to be filled up by future research.

As for the termites of the Indian Continent our knowledge of them has been enlarged somewhat by Desneux's description of some termites of Sind.

The latest valuable contribution to this subject comes from Dr. Assmuth, who, I am glad to see, has again begun collecting in the neighbourhood of Bombay and who sent me last year a rich collection (57 tubes) of Bombay termites. There is, it is true, but one new species in the collection, which however is most valuable as completing in a large measure our knowledge of the Indian termites, both as regards the different castes and their several habits.

The following species in British India had been known already :—

Fam. Protermitidæ, Holmgr.

Hodotermes macrocephalus, Desn.; all castes.

Fam. MESOTERMITIDÆ, Holmgr.

Leucotermes indicola, Wasm.; smaller soldier, worker.
Coptotermes Heimi, Wasm.; imago.

Fam. METATERMITIDÆ, Holmgr.

Termes Estherae, Desn.; all castes.
Odontotermes obesus, Ramb.; all castes.
,, *obesus*, subsp. *wallonensis*, Wasm.; all castes.
,, *brunneus*, Hag.; imago.
,, *Horni*, Wasm.; soldier.
Microtermes incertus (?), Hag.; soldier and worker.
,, *sindensis*, Desn.; imago.
,, *mycophagus*, Desn.; all castes.
Microcerotermes Heimi, Wasm.; all castes.
Hamitermes quadriceps, Wasm.; soldier and worker.
,, *Belli*, Desn.; all castes.
Eurytermes Assmuthi, Wasm.; all castes.
Capritermes incola, Wasm.; all castes.
Eutermes biformis, Wasm.; all castes.
,, *Heimi*, Wasm.; all castes.
,, *rubidus*, Hag.; all castes.
Anoplotermes (*Speculitermes*) *cyclops*, Wasm.; imago and worker (*i.e.*, all castes).

Our information about three of them has been enlarged by Assmuth's latest collection which contains the following:—

Leucotermes indicola, Wasm.; imago and larger soldier.
Coptotermes Heimi, Wasm.; soldier and worker.
Odontotermes brunneus, Hag.; soldier and worker.

New for the Indian continent is:—

Odontotermes Feae, Wasm.; soldier, larger and smaller worker (the latter of which is at the same time new to science).

The following is a new species:—

Microtermes obesi, n. sp.; imago.

It is a striking fact that the collection contains no *Protermitidae* whatever.

Though the number of new forms thus discovered is not large, still Assmuth's collection is all the more valuable, as he has added to each number more or less detailed notes on the habitats, etc., which are without doubt among the best I have received from my correspondents. The notes are so instructive and have been made so carefully as to enable me to publish them here with hardly any change. Assmuth is likewise responsible for the photographs 1-7 which are reproduced with this article.[1]

Fam. **MESOTERMITIDÆ,** Holmgr.

Subfam. LEUCOTERMITINÆ, Holmgr.

Gen. LEUCOTERMES, Silv.

Leucotermes indicola, Wasm., 1903.

IMAGO.—Almost identical with that of *Leucotermes ceylonicus,* Holmgr. Antennæ, however, of 16-17 segments (in *L. ceylonicus* of 15 segments). Ocelli generally absent (in *ceylonicus* they are punctiform). Length with wings 9 mm. (in *ceylonicus* 10 mm.).

LARGER SOLDIER.—Very nearly the same as that of *L. ceylonicus,* but antennæ of 15 segments (in *ceylonicus* of 14).

SMALLER SOLDIER AND WORKER.—See WASMANN, 1903. Cf. also HOLMGREN : Ceylon-Termiten, in : ESCHERICH. Termitenleben auf Ceylon, 1911.

Collector's Report :—

BOMBAY, 15-6-1911.—"From the chemical laboratory of St. Xavier's College, room on ground floor; the termites seem to have come out from underground and had almost completely eaten up several boxes of dealwood of which they are specially fond." (Assmuth.)

KHANDALA, 6-6-1911.—"Caught by lamplight in room. Seem to be rather rare in this place and not to occur in larger swarms as is otherwise the case with these termites, since I saw only two or three specimens." (Assmuth.)

Note.—From the above remarks it appears that *L. ceylonicus* and *L. indicola* are very closely allied to, yet different from, each other. The differences are, however, so small as to allow the two kinds to be characterised as distinct races only. I have nevertheless kept them separate, because the interest which attaches to them is precisely based on the slight diversity, not on the similarity of their structure. Both species are in all probability so-called geographical forms of *Leucotermes tenuior*, Hav., from Sarawak.

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[1] Assmuth begs on this occasion to give expression to his deep sense of gratitude to the authorities of St. Xavier's College without whose generous aid the many excursions necessary for collecting the material would have been impossible, and also to Mr. J. P. Mullan, M.A., Assistant Professor of Biology at St. Xavier's College whose able help is responsible for much of the success achieved.

Subfam. **COPTOTERMITINÆ**, Holmgr.

Gen. COPTOTERMES, Silv.

Coptotermes Heimi, Wasm.

Imago.—With regard to the tables printed in Zool. Anz. Vol. XXXVII, p. 552, I wish to remark that the measurements of *Coptotermes Heimi* are somewhat larger than stated there and, consequently, nearer to those of *Coptotermes ceylonicus*—

	C. travians, Hav.	*C. Heimi*, Wasm.	*C. ceylonicus*, Holmgr.
Breadth of head ..	about 1·2 mm.	1·3-1·4 mm.	1·4-1·5 mm.
,, ,, pronotum ..	,, 1·05 ,,	1·2-1·3 ,,	1·3-1·4 ,,
Length .. ,, ..	,, ·6 ,,	·7 ,,	·8 ,,

Soldier.—Scarcely different from *Coptotermes travians*, Hav., *ceylonicus*, Holmgr. and *formosanus*, Shir. In *Coptotermes travians* the antennæ are of 14 segments, in the other species of 15.

Measurements.[1]

	C. travians, 4 specimens.	*C. ceylonicus*, 5 specimens.	*C. Heimi*, 10 specimens.	*C. formosanus*, 10 specimens.
Length of head (without mandibles).. ..	1·25-1·36	1·11-1·29	1·29-1·44	1·41-1·48
Breadth of head..	1-1·16	1·03-1·17	1-1·15	1·04-1·22
Breadth of pronotum	·73-·78	·66-·9	·74-·81	·78-·85

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[1] The tables on p. 192 in "Termitenleben auf Ceylon" are incorrectly printed—see the tables given above.

WORKER.—Same as in *travians*.

Collector's report :—

BOMBAY, 15-3-1911.—Imagines. "Caught by lamplight in room." (Assmuth.)

25-4-1911.—"Termites on footpath behind St. Xavier's College. Had probably been thrown on the road from one of the neighbouring houses or gardens. . . ." (Assmuth.)

20-8-1911—"From St. Mary's College, Bombay (Mazagon) found in room in wooden shelves partly eaten up by termites, and in garden in front of room in stump of tree. Unfortunately specimens from both places mixed up together in same tube by the Collector, Rev. Schurhammer; but possibly both parties belong to the same species." (Assmuth.)—Both are, in fact, of the same species.

Fam. **METATERMITIDÆ,** Holmgr.

TERMES SECTION.

Gen. ODONTOTERMES, Holmgr.

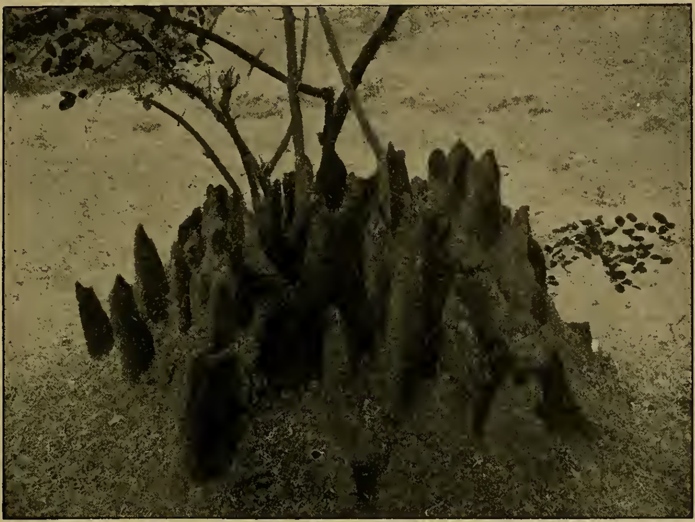
Media of forewing arising from Cubitus. Third segment of antennæ shorter than second.

Odontotermes obesus, Ramb.

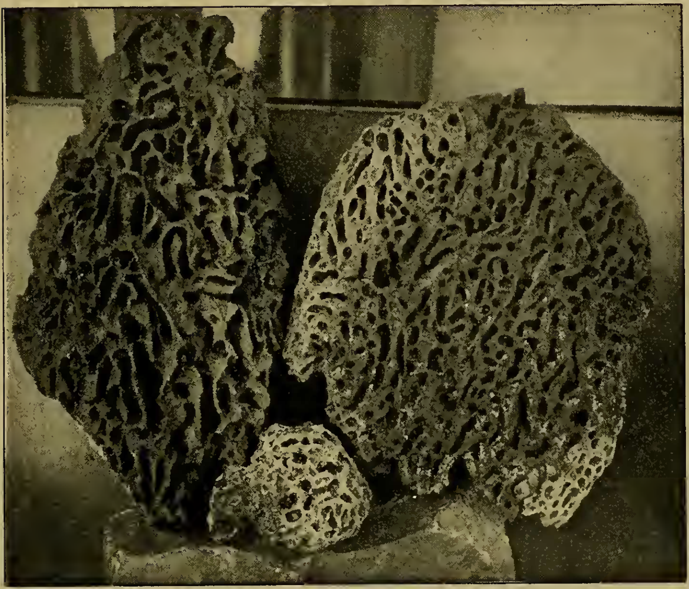
Specimens from numerous colonies and nests are at hand. As stated previously by WASMANN, the species varies rather considerably in size, and also a little in appearance. At first I was inclined to assign the specimens sent to me to two different species; but a closer examination of the material seems to show that the various forms are nothing but different biological types of the same species; for I have been able to insert between the two abovementioned forms an intermediary one containing qualities of both. I propose to name these three forms *Odontotermes obesus a, b* and *c*.

Odontotermes obesus a :—Length of head of soldier 1·85-2 mm., breadth of head about 1 mm., length of body about 3·7 mm. Labrum reaching to one-half the length of mandibles. Salivary glands not very well developed.

Odontotermes obesus b :—Length of head (soldier) 1·96-2·03 mm., breadth of head 1·11 mm. approximately, length of body 4·25-4·5



I.—TYPICAL NEST OF *Odontotermes obesus* RAMB. form *a* (Holmgr.).



II.—FUNGUS-BEDS OF THE SAME.

TERMITES FROM BRITISH INDIA.

mm. Labrum reaching to either one-half, or one-third only, the length of mandibles. Salivary glands same as in *a*.

Odontotermes obesus c:—Length of head (soldier) 2-2·33 mm., breadth of head about 1·33 mm., length of body 5·25-5·4 mm. Labrum reaching to one-third only the length of mandibles. Salivary glands very strongly developed. (Different from *Odontotermes obesus wallonensis*, Wasm.)

Collector's report:—

Odontotermes obesus a.

KHANDALA, 21-1-1911.—"In dry half-burnt twigs and other vegetable remains, which, after being covered with friable galleries of red soil, had—as far as thus covered—been eaten up by termites. Soil used for building galleries evidently not so well cemented with secretions from salivary glands as is otherwise done by *Termes obesus*." (Assmuth.)

21-1-1911.—"Pretty tall mound at foot of bush on low slope." (Assmuth.)

26-2-1911.—"Smaller mound crowned by turrets, constructed on hillside in midst of shrubs." (Assmuth.)

26-2-1911.—"Middle-sized mound at foot of high tree." (Assmuth.)

26-4-1911.—"Hillock nearly 6 feet high leaning against a tree. Two queens, but only one king taken in nest." (Assmuth.)—Imagines of *Microtermes obesi*, n. sp., found in same nest.

22-5-1911.—"Mound built on slope by side of mountain path. Nest deserted, probably pillaged by ants. Fungi grown to long thick white stalks of 10 mm. and more in length. No termites in fungus beds, only a small number of them found in narrow passages constructed in pillars of nest. Nest therefore pillaged in all probability but a short time before. No queen nor royal cell either to be found." (Assmuth.)

22-5-1911.—"Big nest on slope at bottom of shrub, the roots of which were found traversing every part of nest. Fungus beds of strangely bluish colour (in other cases simply brown). Though only small part of nest examined, yet 260 guests taken." (Assmuth.)

25-5-1911.—"Mound on hillside in bushes." (Assmuth.)

BORIVLI JUNGLE (SALSETTE ISLAND), 25-3-1911.—"In dry tree-trunk completely hollowed out by termites."

5-4-1911.—"Nest under bamboo shrubs on slope. Upper height of nest (*i.e.*, measured from highest point where mound and slope met,) 1·25m. above ground, lower height more than 2m. Exterior form and fungus beds as on photos 1 and 2." (Assmuth.)

5-4-1911.—"Nest with broad cupolas at foot of high Targola palm. Fungus beds as on photo 4; as, however, one *Termitoxenia Assmuthi* was taken; I rather think the species to be the common *Termes obesus*. Also some other guests taken in the nest point to the just mentioned species." (Assmuth.)

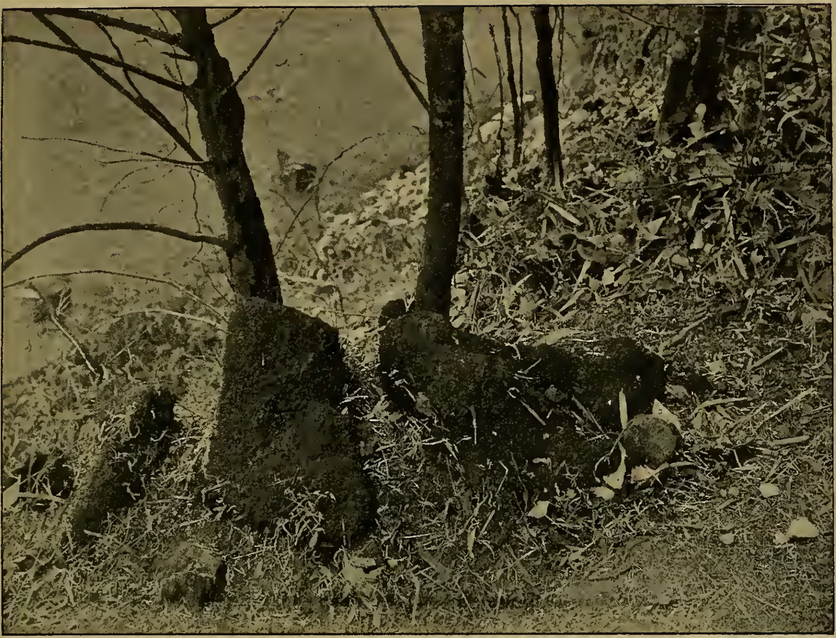
5-4-1911.—"Termites under stone." (Assmuth.)

Aberrant form of a nest.

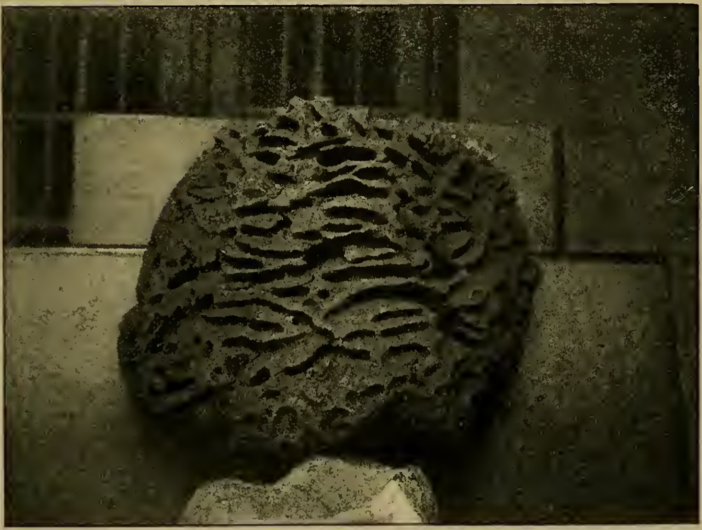
KHANDALA, 1-5-1911.—"Pretty tall mound on slope, between two trees. Interior of nest quite full of large and small stones, hence most of fungus beds not conical as usual, but some flattened out, others almost cubiform, their forms just fitting into spaces left here and there between stones." (Assmuth.)

Odontotermes obesus b.

KHANDALA, 2-6-1911.—"Nest on bank of water-course which had dried up after monsoon; river bank about 3 feet high. Upper structure of nest consisting of several very low cupolas each completely separated from the other, the highest of them rising not more than 20 cm. above ground. None of the cupolas showed any perforation, their surface was not smooth, but looked quite weather-worn; in all cupolas an amount of dry grass was found embedded. (Cp. photo 5.) King as well as Queen found after long search, in quite unlooked-for place, about 1 m. from edge of bank and 40 cm. below surface. Though interior of nest showed exceptionally large hollows, yet fungus beds contained therein very small, looking rather like fragments than complete structures. The roof of the beds is a continuous (with large cracks when dried up), slightly convex layer pierced with a number of small holes for the passage of termites (photo 6). *Termitoxenia Assmuthi* in nest which would suggest *Termes obesus*; structure



III.—Nest of *Odontotermes obesus* Ramb. form *c* (Holmgr.).



IV.—Fungus-beds of the same.

Termites from British India.

of nest, however, altogether different from last named species." (Assmuth.)

Odontotermes obesus c.

KHANDALA, 24-4-1911.—"Termites under stone." (Assmuth.)

31-5-1911.—"Nest on small plateau near steep hillside. Upper structure of nest rather small, consisting of four or five blunt peaks (photo 3). The latter completely riddled with holes, just like nests found near Kirkee (*Odontotermes brunneus*, Hag.; see below); their structure, however, not so regularly semiglobular. Fungus beds consisting of a number of more or less parallel layers supported by a good many partitions, the whole arranged in much the same way as in Kirkee nests (photo 4). No queen found. Secretions of biting soldiers as strongly staining as those of *Odont. brunneus.*

N. B.—Examined under pocket-lens, the perforation of the peaks of photo 3 is clearly recognizable." (Assmuth.)

7-6-1911.—"Nest of same structure as preceding." (Assmuth.)

10-6-1911.—"Nest on open ground near coriander-shrub. Fungus beds and outer structure same as described above under *Odont. ob. b.* Diameter of surface area of nest between 2 and 3 m., on which I counted about ten rather broad but very low substructures crowned by some sixty small elevations (photo 5); the highest of the latter rose no more than 20 cm. above ground." (Assmuth.)

BORIVLI JUNGLE (SALSETTE ISLAND), 5-3-1911.—"Mound built round base of tree. Perhaps *Termes obesus*, but fungus beds apparently somewhat different from common type (cp. photo 2), rather like photo 4." (Assmuth.)

25-3-1911.—"Mound without turrets at foot of tree. Fungus beds similar to photo 4." (Assmuth.)

5-4-1911.—"Nest with rather broad blunt cupolas, lying by itself on slope by roadside. Fungus beds pretty near type represented on photo 4." (Assmuth.)

Note.—A typical nest of *Odontotermes obesus* is shown in photo 1. Its overground portion consists of a somewhat semiglobular structure, from which rise a number of more or less pointed turrets.

The diameter of this nest is 2·35 m.; the height of the semi-globular structure, without turrets, averages 56 cm.; highest turret measured from roof of substructure, 55 cm.; total height of nest which was situated on a slightly inclined plane, 85 cm. on more elevated side of slope, 110 cm. on lower. Mantle of nest not perforated.

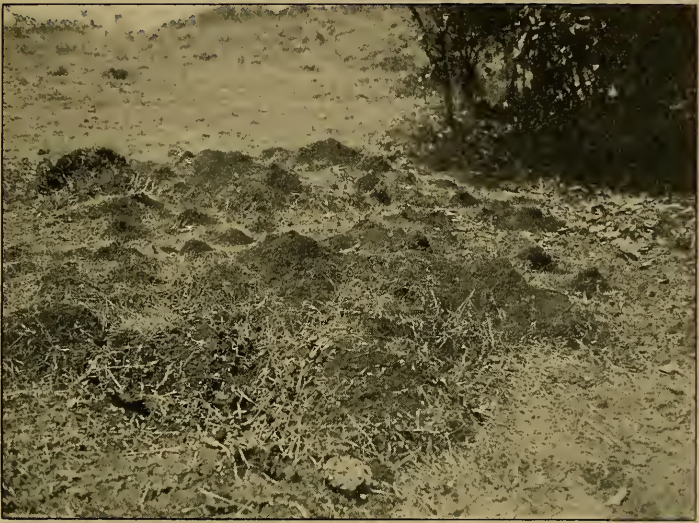
From this normal type the nests of *Odont. ob. c* differ considerably; for the pointed turrets are in this case replaced by small *roundish* cupola-like prominences, the mantle of which is wholly perforated. Moreover the fungus beds within the nest show quite a different formation. If we add to this that the soldiers are a little larger than those of the *a*-nests, with shorter labrum and more strongly developed salivary glands, we should, it would seem, be quite justified in considering the occupants of the *a*-and *c*-nests as two distinct species.

However, this view is contradicted by *Odontotermes obesus b*, the soldiers of which occupy an intermediate position between *a* and *c*, since in *b*-colonies *a*-and *c*-soldiers are found promiscuously. The structure of nest is likewise peculiar in group *b*; its distinctive features are the numerous small prominences or cupolas (cp. with the many turrets of *obesus a*) of low elevation (as in *c*) and completely separated (as in *c*); perforation is absent (as in *a*).

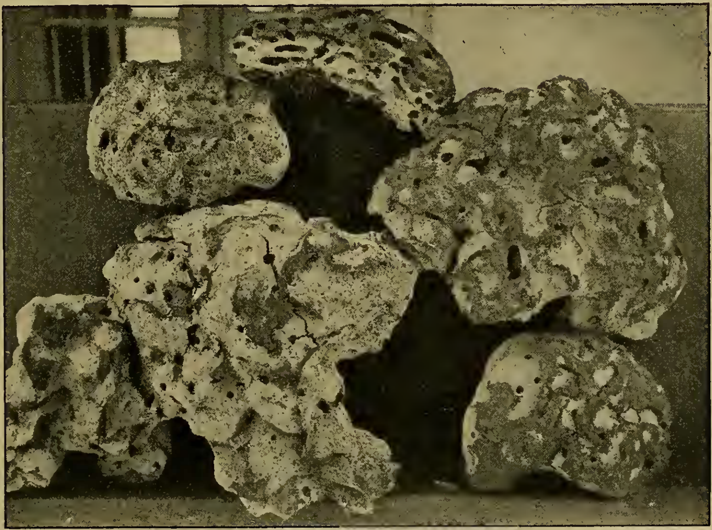
The fourth *c*-nest (examined 10-6-1911; cp. above) is also opposed to the abovementioned view; for it shows the same build as the *b*-nest. Its occupants, however, belong to *O. obesus c*.

The conclusion, therefore, is that the three forms of *obesus* are not entirely distinct biological types; but, as far as I am at present able to judge, the forms merge into one another with regard to their morphological character as well as the structure of their nest.

It is certain, according to Assmuth's information, that *O. obesus* belongs to those species of *Odontotermes* which (like *O. ceylonicus* and *O. Horni*) use secretions of their salivary glands as means of defence.



V.—NEST OF *Odontotermes obesus* RAMB. form *b* [as well as *c*] (Holmgr.).



VI.—FUNGUS-BEDS OF form *b*.

TERMITES FROM BRITISH INDIA.

Though our knowledge of the nests of *Odontotermes* is still somewhat defective—we have so far heard nothing of their general plan of construction nor do we know in what manner fungus beds, nursery quarters, etc., are generally arranged—we may nevertheless compare them with the mounds of the closely allied species *Odontotermes Redemanni*. The fresh, newly built nests of the latter remind one forcibly of the young nests of *O. obesus*, the number of their (*O. Red.*) cones, however, being smaller. Later on even these few cones disappear, the intervening spaces between them being filled up by the workers. As an architect, therefore, *O. Redemanni* seems to have proceeded a step further than *O. obesus*. "Chimneys" are never found in nests of *O. obesus*, whereas with *O. Redemanni* they seem to be of rather common occurrence. Now since the nests of *obesus* are quite as large as those of *Redemanni* it stands to reason that the "chimneys" met with in *Redemanni*-nests, though they *may* also serve the purpose of ventilators, are not primarily built for this end; ventilation is, on the contrary, only their secondary function; for surely ventilation would be as necessary for *O. obesus* as for *Redemanni*. Like Trägårdh, I believe the "chimneys" rather to be passages for transport used by the termites when building nests. They may possibly be found also in fresh nests of *O. obesus*; but this is not at all necessary, since mound-making termites may quite well build nests without constructing any "chimneys" (cp. nests of *Syntermes*).

Odontotermes brunneus. Hag.

Imago.—For description see Hagen, Monographie der Termiten, 1858.

Soldier.—Closely resembling *O. ceylonicus*, Wasm., but somewhat larger, with broader head, and mandibles showing a sharper curve. Antennæ of 17 segments, 4th segment longer than 3rd. (In *ceylonicus* of 16 segments, 4th shorter than 3rd). Left mandible, just beyond middle, with large tooth. Tooth of right mandible in same position but small (in *ceylonicus* rudimentary). Labrum rounded off at tip (in *ceylonicus* pointed). Pronotum deeply bilobed anteriorly (in *ceylonicus* slightly bilobed). Head brown-red, dorsal side of abdomen brownish (in *ceylonicus* head yellow-red, abdomen whitish). Antennæ brown with rings of light colour (in *ceylonicus* whitish).

	O. brunneus, Hag.	*O. ceylonicus*, Wasm.
Length of abdomen	5·5-6·3 mm.	5·5-6 mm.
,, ,, head with mandibles.	2·96 ,,	2·85 ,,
,, ,, ,, without mandibles	1·85 ,,	1·74 ,,
Breadth of head	1·41 ,,	1·29 ,,
,, ,, pronotum	1·11 ,,	1 ,,

WORKER (two sizes).—Head faintly brownish-yellow (in *ceylonicus* yellow). Antennæ of 18-19 segments[1] (in *ceylonicus* of 16-17 segments[2]), towards the tip brownish (in *ceylonicus* whitish). Pronotum bilobed anteriorly (same in *ceylonicus*).

	Larger worker.		Smaller worker.	
	O. brunneus.	*O. ceylonicus.*	*O. brunneus.*	*O. ceylonicus.*
Length of abdomen	5 mm.	4·5 mm.	4 mm.	3·5 mm.
Breadth of head...	1·48 ,,	1·37 ,,	1·04 ,,	·92 ,,
,, ,, pronotum..	·85 ,,	·78 ,,	·74 ,,	·55 ,,

Collector's report :—

KHANDALA, 21-1-1911.—"In dry cowdung completely perforated and traversed with tunnels by termites. Outer surface of cowdung, and partly also inner wall of tunnels, scantily coated with red earthy material, as is done by many termites when constructing galleries. Nest proper not found." (Assmuth.)

KIRKEE, 9-5-1911.—"Nest rising about 3 feet above ground, built in garden against brick wall.—The overground portion of nests of this species consists of a tolerably solid, more or less semiglobular, base-structure which, however, is apparently not so much impregnated with salivary secretions and consequently not hardened to such a degree as the corresponding part of *obesus*-nests. It rises sometimes as high as 4 feet above ground (in one case I measured even 6 feet) and is crowned by a number of rounded (not pointed as the turrets of *obesus*) domes or cupolas of the height of 1 foot or so. The domes, which are not solid but riddled all over with small holes, are of poor consistence so that one can easily crumble them between the fingers; the holes serve as passages for the termites. The colour of the soil used for constructing the mounds of this species round Kirkee is black (that of *obesus* at Khandala reddish-brown).—Three queens taken in this nest, each enclosed in separate cell; these cells built close together, about 2 feet above ground. No king found in any of the cells. but this failure perhaps to be accounted for by lack of time which made careful search impossible. The fact that queens' chambers were all situated so high above ground makes me believe that the three queens taken by me were received into nest only a couple of years after its foundation, the original royal pair probably having their quarters lower down in nest. I opened merely upper portion of mound, so no chance to come across primitive royal chamber. Fungus beds similar to photo 4. Soldiers when biting secrete drop of milky fluid like those of *O. obesus*; but quantity of liquid secreted by *O. brunneus* more abundant and consequently brown spot appearing on skin after liquid drying up, larger as well as more lasting. Photo 7 shows palm of my right hand taken 4 days after examining this nest. It was only 6 days later that the spots finally disappeared." (Assmuth).

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[1] In large workers usually of 19 segments, in small ones always of 18.

[2] ,, ,, of 17 ,, ,, of 16.

10-5-1911.—"Low mound on flower-bed in garden. Queen about half a foot below surface of ground." (Assmuth).

13-5-1911.—"Mound of moderate size standing by itself in garden. Royal cell with king and queen in middle of nest, level with surrounding ground." (Assmuth).

15-5-1911.—"Very small young nest at foot of babul tree. Queen, with abdomen of strikingly white colour, and king taken." (Assmuth).

15-5-1911.—"Tall mound on open space in small babul-wood. King and queen.—As regards guests taken in this and preceding nests (*Termitoxenia Heimi*, Wasm., *Corythoderus gibbiger*, Wasm., *Chaetopisthes Heimi*, Wasm., etc.), the species tallies well with *Odontotermes obesus*, subsp. *wallonensis*, Wasm." (Assmuth.)

Poona, May 1911.—"Collected from mounds by S. G. Gadgil, Esq., M. A." (Assmuth).

Note.—This species, though doubtlessly very close to *O. ceylonicus*, is, nevertheless, as stated above, well differentiated from it. Biologically the two kinds represent in all probability two different types inasmuch as *O. brunneus* builds mounds of its own, whereas *ceylonicus*, according to Escherich, appears to live as an inquiline in nests of *O. Redemanni* and *obscuriceps*; so far, at any rate, no mounds built by *ceylonicus* have been recorded.

Odontotermes Feœ, Wasm.

Imago.—Not known.

Soldier.—For description, see *Wasmann*, Neue Termitophilen und Termiten aus Indien, 1896.

I make the following additions:—Soldier very like that of *O. Horni*, Wasm. Head, however, more narrowed anteriorly; mandibles shorter and somewhat weaker; tooth of left mandible placed more towards middle, that of right, central, rudimentary; labrum longer, covering half the length of mandibles. Pronotum distinctly bilobed anteriorly.

Length of body	7-8-9 mm.
,, ,, head with mandibles ...	3·7 ,,
,, ,, ,, without mandibles ...	1·74 ,,
Breadth of head	2·07 ,,
,, ,, pronotum	1·59 ,,

Larger Worker.—Close to worker of *O. Horni*. Fontanelle distinct, but not brown. Antennæ of 19 segments, third shorter than second, yet somewhat longer than fourth. Pronotum slightly bilobed anteriorly. Pilosity plentiful.

Length of body	6 mm. (Wasm. 5 mm.)
Breadth of head ...	1·92 mm.
,, of pronotum ...	1·15 ,,

Smaller Worker.—Antennæ of 17 segments, third very short shorter than fourth, but equal in length to fifth. Pilosity abundant. Pronotum very little bilobed anteriorly.

Length of body ...	...	4 mm.
Breadth of head...	...	1·15 ,,
,, of pronotum	...	·81 ,,

Note.—This species may possibly prove to be merely a race of *O. Horni* of Ceylon.

Collector's Report :—

KHANDALA, 21-1-1911.—"Termites in room where they had eaten up books and woollen goods[1] after covering them with friable crust of red soil. Room on ground-floor; termites had come up from underground through crack in cemented pavement." (Assmuth.)

7-5-1911.—"Termites in flower pot into which they had found their way, as it had probably been standing in garden over underground nest. Narrow tunnels interrupted at short intervals by small extensions or "chambers"—the size of the latter generally not exceeding that of a monkey-fig—found all through mould in flower pot. Inner walls of tunnels rough, neither smoothed, as with *Odontotermes*, nor blackened, as with *Eutermes biformis*." (Assmuth.)

25-5-1911.—"Under stone in deep ravine." (Assmuth.)

8-6-1911.—"Under stone the surroundings of which clearly showed that this is one of the several kinds of white ants which, during night, cover the surface of ground in neighbourhood of nest with friable galleries and more or less extensive coatings of red earthy material; the termites then eat what they have covered—dry grass, leaves, wood, etc.,—and only as much of it as they have covered, leaving any portions outside the crust untouched." (Assmuth.)

Gen. MICROTERMES, Wasm.

Microtermes obesi, n. sp.

IMAGO.—Very close to *M. sindensis*, Desn.; chiefly differentiated from this species by the dimensions which are somewhat smaller

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[1] It is remarkable that cotton goods lying in same shelf were covered by termites with galleries, but otherwise left altogether intact.